

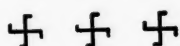
RECORDS ^{OF} THE PAST

VOL. III



PART III

MARCH, 1904



THE CAVATE DWELLINGS OF CAPPADOCIA

BY G. E. WHITE

WHILE all of Asia Minor is rich in archæological remains, the places of greatest interest visited by me are Troy, Boghaz Keuy and the Cappadocian cavate dwellings. Troy is attractive chiefly because of Homer. As one stands on those ruins of moderate extent and views the meadow where run the tiny rivulets dignified as the Scamander and the Simois, he feels that Homer made better use of the literary materials at his disposal than any other writer that ever lived. Boghaz Keuy, the ancient Pteria, represents the Hittite civilization, old, peculiar and but partly understood. The cavate dwellings of Cappadocia represent the Christian religion, the Greek language and the Byzantine government.

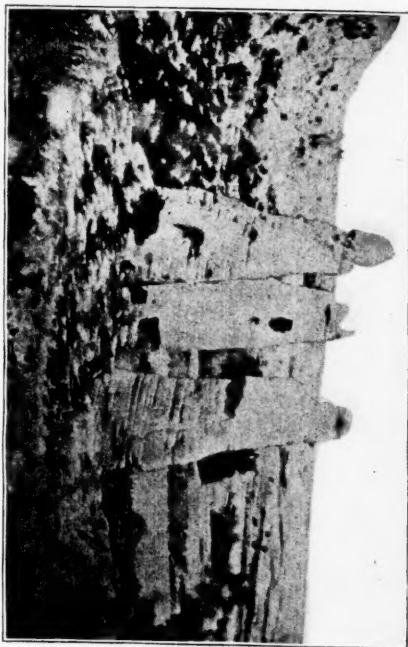
An extensive region in central Asia Minor, of which Cesarea Mazaca is at the northeastern corner, is largely volcanic in formation, the rocks being composed of soft tufa or trachyte, and the soil, one of the most favorable for the production of grapes, being formed of the same grayish material reduced to powder. This rock is so soft that it can be slowly whittled with a knife, and doors, windows, stairs, pillars, arches, and rooms greater and smaller, are easily worked in it, though it does not wear away rapidly under natural agencies, and its surface hardens on exposure to the air.

It was a fine summer morning when a party of 3 Americans, amateur archæologists bent on sightseeing, left Urgub to visit the remarkable collection of abandoned cavate dwellings in the valley of Guereme. On the way we passed many huge tufa cones 4 to 80 ft. high, the material between them having been cut away by the action of water, but the material of each cone being held by a conical flat cap of still harder stone tipsily balanced on the apex. As we ascended the last ridge beyond which lay the valley of our quest, our guide excitedly covered my eyes with his hands, and led me to the top, whence the eye takes in the whole panorama beyond and below.

It was indeed a weird picture that burst on my sight. The main valley was over half a mile long, deepening and widening toward the open plain. The sides, which were 100 to 200 ft. high, and various cones and eminences tossed up in the middle of the valleys, were honeycombed with old cavate dwellings to the number of hundreds, the work mostly of monks, and I think, in the generations soon after Constantine and Helena.

The custom of hewing out dwellings in the rocks is old. The prophet Obadiah says to Edom: "The pride of thy heart hath deceived thee, O thou that dwellest in the clefts of the rock, whose habitation is high: that saith in his heart who shall bring me down to the ground?" Edomites like Cappadocians were troglodytes. Asia Minor as well as Syria has abundant magnificent rock-hewn tombs, habitations not of the living but of the dead; for example witness the "5 Mirror Tomb" near Amasia. Rooms cut in the rock overlook the Halys River where it is crossed by the Samsoun Cesarea Road, doubtless a trade route from time immemorial. Excavations in the living rock for cisterns, granaries, snow-pits, dove-cotes, and even houses, are very common in the region over which Mt. Argæus stands sentinel. Some villages are double, consisting of a series of houses above ground habitually occupied, and another series under ground, reached by shafts and connected by tunnels, to which the inhabitants resort in time of danger. When Ibrahim Pasha invaded Turkey half a century ago with the Egyptian army, the villagers of Misli fled below ground, cutting off their rear by stone doors like mill stones, which they rolled across the passageways. The army could not force an entrance. When they lowered buckets into the wells to draw up water, the refugees below cut off the buckets, and finally the invading army swept on, leaving a village of cavate dwellers behind it unconquered. Soghanly Deresi has a wonderful collection of these excavations, but we could not visit it on this trip.

Cesarea was the home of Basil, the great organizer of monasticism in the East. Indeed in the Orient, religion has always assumed more ascetic, in the Occident more practical forms. When Constantine made Christianity the religion of the State, not only was there an impression that the monastic life was the most virtuous, but many devout men felt that the only way left to escape the temptations of the world was to withdraw from them to the practice of religion in



1. CLIFF EXCAVATIONS OVERLOOKING THE HAIYER RIVER. 2. EXCAVATIONS IN ROCK-WORN FORMATIONS. 3. EXCAVATIONS AT
GEUREME. 4. CLIFF AND OTHER EXCAVATIONS

seclusion. So when my eyes were uncovered and I looked full into the valley of Geureme I saw hundreds of excavations in the rock, the first of which may have been begun long ages ago by some primitive race of men, but most of which were certainly completed and occupied by the early monks of the Orthodox Eastern Church.

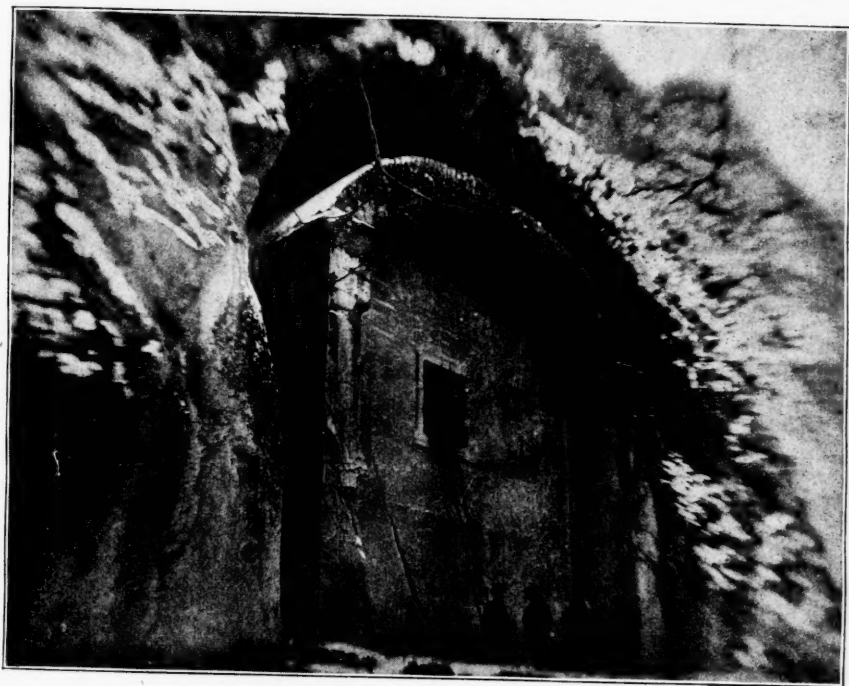
Picking our way down into the valley, we began to enter and explore the excavations. They were chiefly of two kinds, sanctuaries and habitations. My notes made on the spot first describe a chapel, such as we afterward saw duplicated with slight variations in numbers of cases. Such a chapel is from 12 to 15 ft. square, hollowed out in the living rock, and with a seat of stone left running all about the sides. The doorway is low, with an open hall before it. Within, the ceiling is in the shape of a rolling dome, or the arches rise from the 4 corners to the center. Opposite the entrance a Holy of Holies is hollowed out, connected with the main room by a door and 2 window-frames, and containing an altar in the center, of course of stone, and a seat for the priest at the right hand as one enters the door. Oftentimes the vestibule before the main entrance has several graves cut in its floor, sometimes ostentatiously arranged so as to be trodden upon by comers and goers. The grave has a horizontal ledge just below the mouth for the purpose of supporting a stone slab as a cover, and frequently a grave is seen intended for a tiny child. Among the most remarkable features of these sanctuaries were the painted decorations, usually in red color, and arranged in lines, series of dots, wheels, checkerboards, squares, diamonds, and often representing figures human or superhuman.

The rooms intended as dwellings seemed each originally to have had a shrine in one corner. They were usually 10 to 12 ft. square in size, low and bare, cold and dark. Each room had one opening cut to admit the light. Often overhead a shaft like a chimney about 18 in. square rose perpendicularly to another room above. Each of the 4 sides had hand holes or foot holes cut out of the rock for climbing, but so narrow was the shaft that one had difficulty in bending his limbs sufficiently to make the ascent. At the top a ledge was once fitted with a trap door, hinged and bolted, securing the lonely occupant from unwelcome intruders. In this way the rooms rise often to a height of 5 or 6 stories, and sometimes to 10 or 12. A shelf let into the wall, is the only existing sign of furniture in these apartments.

In different places there are refectories. Take for example one finely cut, 20 ft. by 30 ft. in area, having a table along the side with seats in front and behind, and all of stone, in excellent condition and preservation. At the head an alcove is rounded out for the abbot. Two fireplaces furnished conveniences for cooking the viands of a country whose native food products are among the best in the world, and a wine press with a vat scooped out in the floor was ready for pressing the grapes that grew to hand on the top of the cliff overhead.



ROCK-HEWN DWELLINGS OF CAPPADOCIA, ASIA MINOR



THE MIRROR TOMB, NEAR AMASIA, ASIA MINOR

Elsewhere were stables about the size of the smaller rooms with mangers in the side walls and halter handles for tying horses, asses and perhaps cattle.

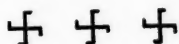
Several larger churches, each with many columns and with domes up to the number of 9, were excavated partly under ground, their entrances being now much choked by debris. The largest had a transept of 18 by 36 ft., the stem of the nave 16 by 16 ft., the apse 18 by 40 feet and a side chapel with its own separate apse. In the days of its glory it could accommodate several hundred persons. The main dome at the base of its arches was 18 ft. above the floor, and its highest point not less than 25 ft. Here, as in the other churches, were seen scores and hundreds of frescoes, that in their time were finer than any decorative art found in the modern Oriental churches of the Levant, but they have been terribly defaced by Turkish and Mohammedan hostility to pictures as ministering to idolatry. A single overhead figure, life-size or larger and beautifully executed, may be injured in a hundred places by stones thrown at it with the especial aim of knocking out the eyes. The frescoes represent Scripture and other religious scenes. Christ and His apostles figure frequently, also the prophets and other Old Testament characters, Constantine and Helena, and the early fathers of the Church. The dragon is repeatedly slain by St. George. In one case our Lord and His disciples appear eating fish. The Transfiguration, the Triumphal Entry, the Holy Family, the Baptism of Christ, the Three Children in the Fiery Furnace are favorites. A lifelike representation of the Baptism includes Satan blowing a horn, while an angel stands near with a towel extended on both hands, as if to receive a newly baptized Greek baby. In one instance the pillars of a dome are adorned with the figures of 8 of the Old Testament worthies, with a verse from the writings attributed to each. Once a tonsured head appears. Red, white, brown, black, yellow, green, slate and blue, in varying shades are among the colors used, and this imperfect description by no means does adequate justice to the great beauty of these frescoes, even in their neglected and damaged condition.

One of the most curious scenes represents Abraham entertaining his Three Angel Visitors. The latter sit at a table on the backs of 3 chairs with their feet in the seats. Before each are a knife and a fork with black handles, while the blades and tines are white. On a platter on the table is an ox head with its hair and horns and a pile of cakes. Two goblets stand on the table, and a third is extended by one of the visitants to Sarah, who is pouring wine into it. At the other side of the table is the figure of the patriarch, while under the table a cow suckling its calf completes the picture.

There is a peculiar variety in the pictures showing the ecclesiastic making the sign of the cross. The thumb is placed now on the third finger, now on the third and fourth, and again on the second and third. This doubtless indicates a time prior to the establishment of the present custom, whereby the thumb is placed on the third

finger and the sign is made with 3 fingers extended in honor of the Trinity. Similarly the representations of the cross show many different forms. The inscriptions are quite frequent and consist for the most part of proper names, designating the figures that they accompany. They are all in Greek, and the words usually read from top to bottom, a form adapted to writing on columns. The shapes of the letters vary, as is common in Greek, and particularly the sigma, which takes a form not familiar to me elsewhere.

[Specimens of crosses and inscriptions will be figured under Editorial Notes in the April issue.—ED.]



THE BEETLE THAT INFLUENCED A NATION

BY. C. DE W. BROWER, A. M.

AN INSECT which for over 3000 years was regarded with deepest reverence by an entire nation and helped mould its character, its figures being worn by the living and buried with its dead, is not a trivial object and may well receive even from this busy age not only attention, but a tribute of respect. The scarab, as some one has wisely said, though never mentioned in history, is yet a history in itself. It is only natural that today among the interesting forms of jewelry displayed in our own stores there can be seen occasionally a ring or pin with a setting in imitation of the beetle, ignorant as the shopper may be of its meaning. It is not strange that in any curiosity shop search will reveal a box or saucer containing a number of the small brown, gray or green objects shaped like beetles on one side and with strange inscriptions on the flat base. The dealer will be unable to read the inscriptions, but will charge a number of dollars apiece for the antiquities from Egypt.

Every traveler in the Nile Valley has offered him here and there the same curiosities at all kinds of prices, and he usually buys a number openly on donkey-back, of Arab tomb robbers, who cannot be relied on to tell the truth as to the place of finding; or of his dragoman with voluble assurances of honesty; or a dealer in some obscure shop in Cairo under circumstances made as mysterious and impressive as possible. The purchasers know them as "Scarab," is told that the inscriptions on the flat side are names of ancient kings which his dragoman will pretend to interpret, and on his return home the tourist has them set in cuff buttons or scarf pins for his friends. The visitor to the tombs and temples throughout the same land notices the figures of the beetle oft repeated and cut deep with the other hieroglyphics. It may be that he becomes deeply interested. He may inquire, study, become one of that coterie with whom collecting scarabs becomes a hobby, as another person searches for rare prints.

And as the months and years pass he comes to understand the quaint object of his quest, and to know that the distinction in the styles are as much a special subject as the differences in the manner of painters, and as unnoticed by those unfamiliar with the study. He learns also that there are scarabs and scarabs and that "made in Egypt" does not carry any guarantee as to age. The wily native recognizes the demand and is prepared to supply it even to names of particular kings, though valuable scarabs are still found and will continue to be, and any modern traveler may secure some of rare worth. But the greater number of travelers, like the public in general, know little about them, important a place as they have held in the life of a great nation. And it is because it is worth the knowing that this story of their meaning and history is written; and with the greater reason since many of even the most pretentious encyclopedias do not mention the subject at all.

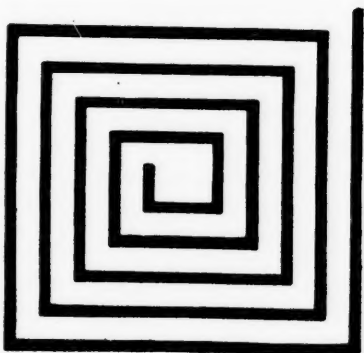
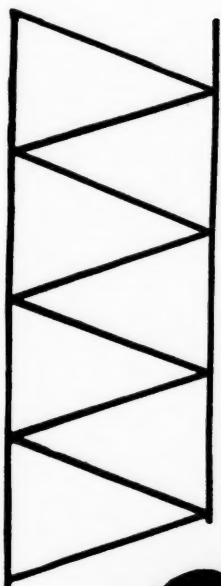
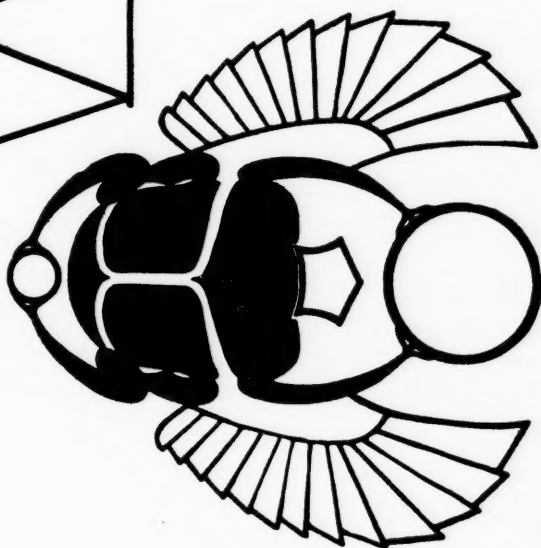
In the earliest ages of historic Egypt the beetle had a mysteriously sacred character and its images were used to express certain fundamentals of the religious faith of the people. The Egyptian was deeply religious from the beginning, and one of his profoundest beliefs was in his immortality, in which both soul and body were to share. Now it was noticed that a beetle covered its egg in a bit of dirt which it rolled over and over up the bank, often above flood level where it was buried in a hole. The warmth of the Sun hatched the egg and in due time a beetle came forth from the grave. Here then was an illustration of vivifying after death; an emblem of the resurrection. The inundations covering the land from end to end seemed in general to have no effect on this little animal, for as many appeared after as there were before, and in this way the idea of perpetual life received illustration.

But there were other interesting and historically important reasons for the exalted place given the Scarab,—a word which is not Egyptian, but from the Greek "Skarabeius," meaning a beetle. The special type favored was the "Skarabeius Sacer." The Egyptian word for beetle was Kheper, meaning "to be," "to create," "to become." So the figure of the beetle came to convey the same idea. Further, one of the forms of the sun god was Kheper or Kephra, holding high place in the involved mythology of the people. He was the Morning Sun called "He who is." The similarity of name and the root meaning suggested that in the image of the beetle there was to be found nothing less than a representation of the god and so its fetish. The egg resembling and representing the Sun Disk. There exist decorations on the monuments depicting Khepera riding in a sacred boat, his head being a beetle with outspread wings, and certain sculptures depict priests paying divine honors to a beetle placed on an altar; and the representations of the insect often portray it holding the Sun Disk above its head, symbol of the creative power of the universe and of successive becomings. The scarab image, therefore, was thus a symbol of a god of life duration, development, and



EGYPTIAN . N9. 3

DECORATIVE
SYMBOLS . 2 . 2



to wear one was not only to keep the hope in mind, as the present-day Mohammeden is reminded of death by his turban, but, more, to help insure these things for the wearer. As the sacred Sun sank at night into the darkness to rise again, bringing new life, so the egg buried disappeared to rise with new activity. Such it was believed would be the experience of men and women, though dying here and buried, to live anew and forever.

With a nation which with an all-pervading religious life used picture writing not only at the beginning of its history, but continued to use it even after sounds were expressed by signs, this symbol of resurrection, of continued indestructible life, was to the people somewhat, what the cross has been to Christendom. It was a sign of religious belief, of the accepted creed. In addition to all the rest Sir Samuel Baker has pointed out that the scarab was highly honored as the harbinger of the high Nile, because it regularly made its appearance at the season of the flood. By the living, the scarab was worn set in rings, ear-rings, necklaces, as a pendant or carried in strings as a rosary, and not only as a sign, but as has been stated, as a safeguard against danger and death. They bore frequently the owner's name and the name of the reigning king. The engraved side was used for a seal also, and so played an important part in the daily life. Some scholars have thought that scarabs were used at times for money when there was no other medium of exchange.

Scarabs were almost universally buried with the dead, being supposed to impart the quality of life to the deceased. They were folded in the mummy wrappings, hung about the neck and arms and placed over the heart. Often a large scarab was put in the heart cavity, the natural organ having been removed by the embalmer as a sign, or, possibly, as a supposed efficacious means of insuring resurrection coming through the new heart. Such funerary scarabs frequently bore inscriptions from *The Book of the Dead*.

The use of the scarab as a sacred emblem began at an early day. There is a gold-foil impression of one of King Menes of the I Dynasty [about 4777 B. C.], but this may be a forgery made from a scarab of later date. Scarabs there are, however, of Neb-ka-ra, the first king of the III Dynasty [4212 B. C.] and of Khufu (Cheops), builder of the great pyramid [3910 B. C.]. These are of fine workmanship, small and beautifully colored. The same may be said of some of Khafra [IV Dynasty 3908-3845 B. C.]. These are among the earliest known. To say that the use of these figures of the beetle was popular, quite fails to express the truth. More were worn during certain dynasties than in others, as religious life rose or waned; so, for example, when religious revival came under Thotmes III [1502-1449], several thousand varieties bearing his name were produced. He was popular with the priests, a defender of the faith. On the contrary, in the XIX Dynasty scarabs largely went out of fashion; so under Amenhotep IV, who tried to subvert the old faith. But there is reason to believe that millions upon millions were manufactured

and served their day until after the Persian period, or about 500 B. C., when they ceased to be used as sacred emblems and the manufacture came to an end, having flourished more than 3,000 years. The most recent, genuine scarab one can pick up or purchase is already more than 2,000 years old.

The early scarabs were as a rule finely glazed, and often colored like the beetle itself, of bluish-green. Later good glaze scarabs became rare. There are many changes from the original coloring due to age, and many scarabs have lost their color altogether during the lapse of the ages and are now only browns and grays. Glazes differed according to the place of manufacture. Some of the finest work belongs to the XII Dynasty [2778-2565 B. C.], the art deteriorating after the XVIII Dynasty, though occasional revivals appear.

They were made of varying materials and were of different sizes; but at the first, as often in later centuries, were cut from steatite. Those of Cheops are of limestone, stained. The middle kingdom produced some of amethyst, emerald, jasper and of garnet, and some of later days were of gold. One of carnelian, of rare beauty, was offered to me by an Arab at Old Memphis. During the XXII Dynasty pottery and pastes were used; in the XXVI Dynasty hard stones of all sizes and colors. In the ruins of Naukratis in the Delta Dr. Petrie found in a potter's workshop hundreds of finished and unfinished scarabs with clay moulds and also pigments for coloring. Naukratis first comes to light about 600 B. C. Poor amulet scarabs characterize the XXX Dynasty, made of pottery and badly glazed. Reference may well be made to the finding of the numerous rich and beautiful ornaments buried with Queen Aahotep, wife of Kames of the XVII Dynasty. Among them was a large, flexible, gold necklace with a scarab pendant which was incrustated on the shoulder and wing sheaths with blue glass paste, rayed with gold. The legs and body were of massive gold.

As to their size the majority are small, one-half to three-quarters of an inch in length, with occasional larger sizes, and all perforated lengthwise through the base. A colossal one of black granite in the possession of the British Museum, is 60 in. long and 33 in. high.

An immense variety of devices besides the names of the owners and titles of kings, were engraved on the flat under side of the scarab. There are mottoes, sacred emblems, figures of gods and kings, animals, flowers, autographs, names of deities, places, friendly wishes, pious ejaculations and magic formulas. But bearing so often the names of kings they become of genuine importance as historical documents, and so of extraordinary value as helping establish the chronological period of Egyptian history. They bring to life points concerning unknown kings, and have supplied correct readings of names. In fact many kings and their names are known to us only by their scarabs. In this way the knowledge of dynasties is made more complete. Collections of historical scarabs display chronological series of names of Egyptian kings ranging from highest antiquity.

As a means of dating excavating work, these beetle amulets have a value, since by their style and the names they bear dates can be approximated with greater accuracy. To the collector comes the gain, not only of possessing antiquities, but the increased historical knowledge and acquaintance with the language, something of which he must know to be able to select the prizes and assign them to their place. Some of the most complete and valuable collections are in the hands of private persons. Egypt has been so systematically and continuously despoiled that vast quantities of all her richest treasures are now in other countries.

To illustrate the character of some of the inscriptions the following are given, selected at random :

"Nefer-hotep, born of the royal mother," "The royal son Apeq," "Chancellor, seal-bearer, overseer of palace, Aki," "Ra-men-kheper, good god, lord of the two lands," "Rameses, beloved of Amen," "Beautiful Amen-ra, giving life," "The divine wife, Ankh-ta." This last reminds us that women were held in high honor in Egypt. Bin-othris, the third king of the II Dynasty, established by decree the lawfulness of female succession to the throne. One large scarab records the marriage of Amenhotep III, in whose honor the colossi were erected at Thebes, with the great Asiatic princess Tyi [1414-1379 B. C.]. Of these about 20 are known to exist.

Occasionally royal edicts were promulgated by means of the scarab; at least one king so used them, this same Amenhotep III, who, besides announcing his marriage, tells the story by scarab inscription of the capture of wild cattle. Only one of these is known to have survived. Another tells a story of a lion hunt, and of these a few remain.

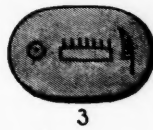
Here are a few more translations: "Truth upholds Ra (Ra-men-mat)," "The good God lives," "There is a mother whose house feareth not," "Abounding in graces," "A real doer of what is pleasing to the gods," "Truth is a good mother."

One of the interesting features connected with scarabs is that on them were traced the earliest decorative art of Egypt. According to Dr. Petrie, the zigzag line is the simplest and earliest kind of ornament, and we find it on the oldest tombs, about 4000 B. C. Then comes the spiral or scroll, one of the chief elements of Egyptian decoration, second only to the lotus in importance. Its service and meaning are alike uncertain, but the scarabs provide us with the earliest examples by far. Thus style of decoration may even have originated on scarab design. The earliest that can be determined is a scroll of Assa, about 3800 B. C. Certain Egyptologists have asserted that this is the earliest attempt at ornamental design either in Egypt or any other nation. Spirals are used to fill up the sides of the inscriptions on the scarabs of Pepy, and for over 1000 years they are to be found as an accessory on scarabs, after which they often appear elaborated as sole patterns.

There may easily be found here the proof in earliest days of the

influence of religion on art. Because there was a S. Francis at the beginning of the XIII Century, there were Dante and Giotto at its close. Because there was a faith which the scarab symbolized there followed scrolls and other expressions of decorative art. John Ward, a collector of note, is inclined to consider these scrolls a secret form of religious symbol.

Surely in the light of all the facts it can be claimed that the jeweler is justified today in using the beetle as an ornament for modern decoration; the traveler is justified in his interest in scarabs, the museums are under obligation to give them honorable place, the collector needs no apology for his hobby, and we all can look on them with a feeling akin to reverence. "Love adds a precious seeing to the eye," and a better acquaintance with the scarab may influence us to a liking, at least, which will insure that we shall never again idly and lightly class it with the "flotsam and jetsam" we count as "curiosities."



1. SCARAB WITH SPIRAL SCROLL, V DYNASTY; 2. SCROLL SCARAB, MIDDLE KINGDOM; 3. RA-MEN-MAAT, "TRUTH UPHOLDS RA"



SHELL-HEAPS OF THE LOWER FRASER RIVER BRITISH COLUMBIA*

BY HARLAN I. SMITH

THE Fraser River empties into the Gulf of Georgia, forming a delta which extends along the coast about 14 miles, from near the northern boundary of the United States, to Point Gray, about 6 miles southwest of Vancouver, B. C. The effect of the tide is felt for about 20 miles above the mouth; and for a still greater distance we find one or both shores formed of alluvial soil, which at certain seasons receives deposits from the River. The westerly winds, in ascending the slopes of the Coast Range, precipitate their moisture, and consequently there is a considerable amount of rain, principally in winter. Vegetation is dense and luxuriant. Many of the trees are of gigantic size.

* A full report on this subject is given in Harlan I. Smith's *Shell-Heaps of the Lower Fraser River, British Columbia*, which appeared as Part IV of Vol. IV of the Publications of the Jesup Expedition in the *Memoirs of the American Museum of Natural History*, March, 1903.

The Indians inhabiting this region subsist largely upon fish and shell-fish. Whales, seals, deer, bear, etc., roots and berries are also used. The people depend largely upon the wood of the cedar and other trees for the manufacture of their implements and utensils. The bark of the cedar is made into garments, bags, mats, etc. They build immense houses of cedar-planks. The arts of carving and painting, which are characteristic of the North Pacific Coast, are well developed. Most of the implements or objects of art are made of wood.

The most extensive remains of the early inhabitants of the coast are shell-heaps made up of layers of shell and other refuse from their villages. They are found on many flats along the coast, and at the mouths of most streams where the beach is smooth enough for canoe-landing. In front of many shell-heaps, where the beach is covered with boulders, the stones have been removed to make canoe-paths up from the water; and at low tide these paths, which are at right angles to the beach, may yet be seen, clearly marked by the boulders piled in parallel rows at their sides. These often direct attention to a shell-heap at the edge of the forest which might otherwise be passed unobserved. The streams were highways to the interior, sources of fresh water and of food. At their mouths, mud flats are formed, on which shell-fish live.

The typical shell-heap is several hundred yards in length, about 30 yards in width, and 3 or 4 ft. in height. Others are miles in length and some reach a height of over 9 ft. [See plate I].

The age of some of these heaps is considerable, as indicated by the presence of Douglas-fir stumps over 7 ft. in diameter [See plate II] standing on 9 ft. of unbroken layers, many of which are only an inch or two in thickness. One stump only 4 ft. in diameter exhibited over 400 rings of growth, but on the larger stumps such evidences were obliterated by decay. Judging from these stumps, the top layers of the shell-heaps cannot be less than 500 years old, while the lower layers must have been deposited a considerable time before, to allow for the formation of 9 ft. of strata above them.

The shell-heap at Port Hammond, in the upper part of the Fraser Delta, is over 20 miles by water from the present seashore, where the shells, of which it is largely composed, are found. By land the nearest point of the seashore is over 10 miles. Judging from the customs of the present natives, the water-route would have been used in bringing the shell-fish to the village; but the Indians prefer to live near the shell-beds. It is hard to believe that they would have carried from the present seashore the large quantity of shells which compose the shell-heap at Port Hammond. The rate of encroachment of the delta upon the sea, or of changes in the level of the land, may furnish some clue to the age of the Port Hammond shell-heaps. At present, according to information given by the late Dr. George M. Dawson, little or nothing is definitely known in regard to the geological age of the Fraser bottom-lands and the surrounding gravel-terraces.



MAIN SHELL-HEAP AT EBURNE. MAN STANDING ON NATURAL SOIL. ALL ABOVE HIS FEET ARE LAYERS OF SHELLS



MAIN SHELL HEAP AT EBURNE, INDICATING AGE OF 500 YEARS. FIRE STUMP IN WHICH WOMAN IS STANDING IS 7 FT. IN DIAMETER, STANDING ON 9 FT. UNDISTURBED LAYER OF SHELLS

The strata in the shell-heaps are often entirely composed of the remains of shell-fish, largely clams, mussels and in some cases oysters.

Vegetable mould and general refuse also make up a large part of some heaps. The shell-heaps on delta land along large rivers, as compared to those along sea-beaches, seem to contain more black vegetable mould; most of the shells seem to be broken and in a more advanced state of decomposition; skeletons are nearly as well preserved, and are much more frequently found in order; and implements of various kinds are more numerous among the layers.

In the shell-heaps of the lower Fraser River the skeletons and stray human bones found were deposited at the time of the formation of the layers, and were not intrusive burials, as was clearly shown by the numerous unbroken strata extending over them. The bodies usually lie on the side, with knees close to the chest. Unlike the skeletons found in the interior, there are but few if any objects accompanying them, except in rare instances a few shell beads, copper ornaments, and chipped and ground stone points for arrows, spears, etc. Such specimens, as well as other artifacts, were frequently found scattered in the layers, and it is likely that they were only accidentally near the skeletons. This is particularly true of the stone points.

At Eburne 2 types of skeletons are found which belonged apparently to co-existent people, as they were excavated from the same layers. If one of these types consisted of captives or slaves, there was nothing in the manner of burial to indicate it.

The shell-heaps of Vancouver Island and of the adjacent region have been known for many years, and were mentioned by Bancroft* in 1875 and by Dawson† in 1877.

The large shell-heap near Eburne has been known for some years,—ever since the piece of southeast road between the end of the road running due south from Vancouver and the bridge at Eburne was cut through the middle of it. Mr. William Oliver, who was in charge of this work, observed the occurrence of artifacts, and caused the men to save such objects of antiquity as came to their notice. His observations at this time, and the collection which was then made, drew the attention of other observers to the place. The collection was secured by me and is now in the American Museum of Natural History.

In 1884 the Rev. H. H. Gowan and Mr. James Johnson examined this shell-heap, and secured from it a human skull which was peculiarly long and had a narrow forehead. A bone spear-point was said to have been found piercing the left temporal bone of this skull. Both skull and spear-point were deposited in the Natural History Museum of New Westminster, B. C. A photograph of the skull was sent to the Smithsonian Institution, and I secured 2 negatives of it for the American Museum of Natural History. Mrs. Ellen R. C. Weber,

* *Native Races of the Pacific States*, Vol. IV, pp. 736, 739, 740.

† Note on Some of the More Recent Changes in Level, etc. [*Canadian Naturalist*, April, 1877].

now of Vancouver, while living at Port Hammond some years prior to 1897, made a collection of the specimens turned up in her garden, which was on the shell-heap.

In September and October, 1897, I conducted explorations for the Jesup North Pacific Expedition in the shell-heaps of the Lower Fraser River at Port Hammond. This work was continued in June, 1898, near Eburne; and in September of that year Port Hammond was revisited. The following descriptions are based upon these explorations.* In the field, assistance was rendered by Dr. Roland B. Dixon and Mr. Reginald C. Brooke. Thanks are due to the land-owners who allowed our explorations on their property; to Mr. R. L. Codd, who personally facilitated explorations on his land; and to Mr. James M. Dale for specimens collected by him. The accompanying illustrations are from drawings made by Mr. Rudolf Weber, and the plates are reproductions of photographs taken by the author.

The explorations along the Lower Fraser River were largely confined to the shell-heaps at Port Hammond and Eburne. At Port Hammond the main shell-heap is located on the alluvial ridge parallel to the north bank of the Fraser River, and is always within 50 ft. of the stream, which in places has cut into shell-layers. It extends along this ridge continuously for about half a mile downstream, beginning at the base of the gravel terrace through which a cut has been made for the Canadian Pacific Railway, and on which was located a burial mound.† There are some oval shell-knolls on the most westerly part of the main shell-heap where it is low. There are also some such knolls on the natural ridge beyond. They occur at intervals of from perhaps 100 to 150 ft. and probably mark spaces where refuse was thrown between the ancient houses, or in close proximity to the doorways. It is possible, however, that they mark centers of habitation. Beyond the end of the ridge where the land is low there are a few low oval shell-heaps, probably refuse from isolated houses. Back of the ridge along which the shell-heap extends, the land is low, and in some places was swampy before the making of dikes and ditches. It is said that in the rear of the shell-heap there was formerly a water-course, which extended from near its eastern end northwestward to Pitt Meadows, and farther on into Pitt River, thus affording canoe communication from the rear of the village to the north, while the Fraser River afforded connection with the east and west.

The shell-heap is, on an average, about 100 ft. wide, and reaches a maximum height of 8 ft. During unusually high floods silt is sometimes deposited on it. At least 6 gardens are located on the shell-

* Preliminary reports of this work were published as follows: *The Jesup Expedition to the North Pacific Coast, Science*, N. S., Vol. vi, No. 145, Oct. 8, 1897, pp. 535-538; Franz Boas, *Operations of the Jesup North Pacific Expedition in 1897*, *Memoirs, Am. Mus. Nat. Hist.*, Vol. II, June 16, 1898, pp. 7-11; Harlan I. Smith, *Archaeological Investigations on the North Pacific Coast of America*, *Science*, N. S., Vol. IX, No. 224, April 14, 1899, pp. 535-539; also separate; Harlan I. Smith, *Archaeological Investigations on the North Pacific Coast in 1899*, *American Anthropologist*, N. S., Vol. II, July-September, 1900, pp. 563-567; also separate.

† See description of this mound in *Memoirs, Am. Museum of Natural History*, Vol. iv, p. 60.

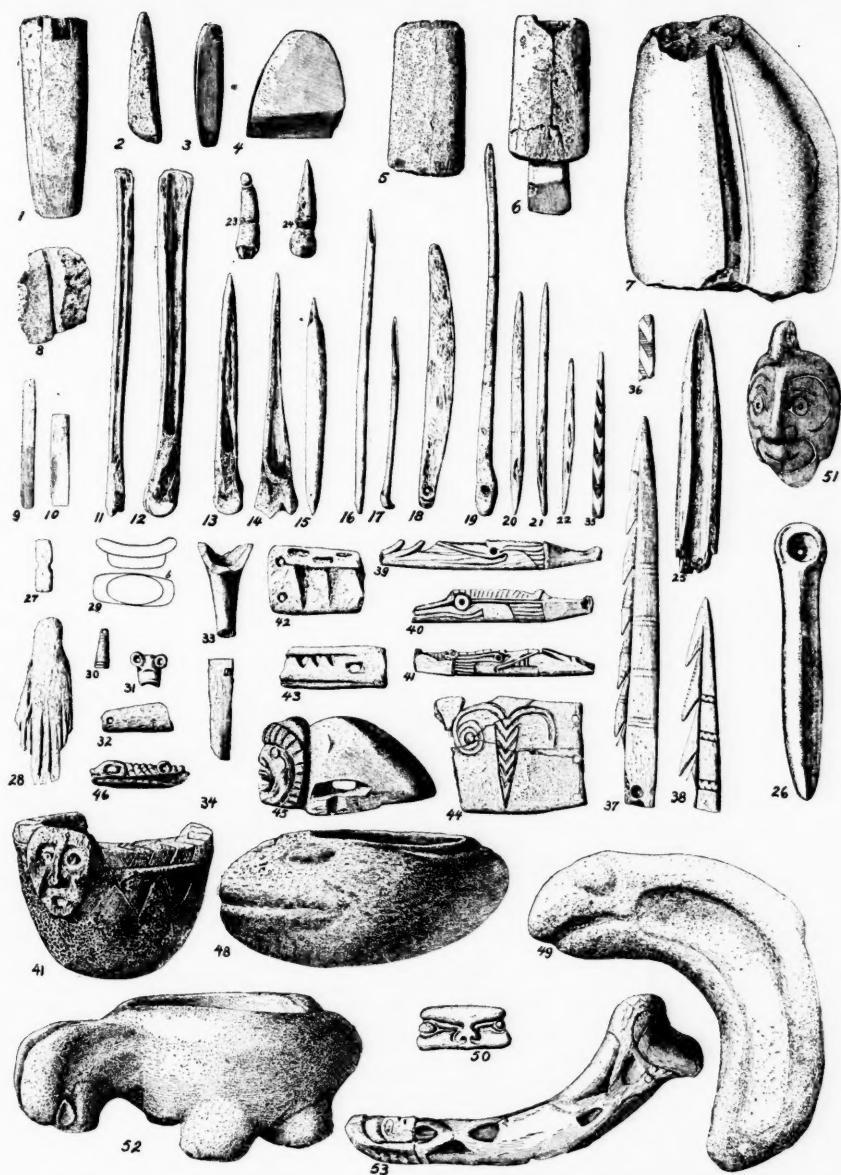
heap, but parts of it are yet protected by natural vegetation. Below the surface-soil, and down to the bottom of the shell-heap, clam and mussel shells are found mingled with charcoal, a very few oyster-shells, and the bones of animals. Usually the purest shell-layers are found within 3 ft. of the surface, the lower layers being largely of black vegetable mould, refuse, charcoal and ashes. The general characteristics of the specimens found in the lower layers are the same as those found in the highest strata and on the surface. The fir-trees growing upon this shell-heap suggest that it is of considerable age, but there is no evidence of any very great antiquity.

A Shell-heap on the oval knoll farthest downstream beyond the main site, was entirely excavated by our party. On the northwestern edge of this heap stood the stump of a Douglas-fir tree. The fallen tree belonging to this stump measured over 4 ft. in diameter at a point over 10 ft. above its base. A second stump stood to the north-northwest of the heap. Its roots extended over some of the lower shell-layers. The stump, reduced in thickness by fire, still measured 13 ft. in circumference at a point 8 ft. above the ground, where the trunk was smooth. It was 29 ft. in circumference at a point 3 ft. above the ground, but below the point where the trunk begins to expand into buttresses.

The main shell-heap near Eburne is north of the north arm of Fraser River, and parallel to its bank. It is opposite the eastern end of Sea Island, and is located along the edge of the gravel terrace which here drops abruptly to the alluvial bottom-land, that is perhaps $\frac{1}{4}$ of a mile wide and subject to occasional inundation.

The heap is at least several hundred feet long, and is from 50 to over 200 ft. wide, covering several acres. The extreme limits have not been determined because covered with forest growth. In some places it rises to form knolls similar to those at Port Hammond, but larger. Its maximum depth is about 9. ft., and it is made up of layers composed of shells of clams, cockles, mussels, barnacles, of ashes and other refuse, somewhat similar to that in the heap at Port Hammond. Here, however, the lower strata are composed largely of whitish shell material similar to the material of the shell-heaps along the sea-beaches, except that it is broken into small pieces, and few large shells are entire. While at Port Hammond the lower layers overlies black earthy matter, they seem to rest here on the natural yellow gravel, with little or no signs of any old surface-soil intervening. Back of the heap the surface of this gravel is higher than the bottom-land, but it is slightly lower than that under the shell-heap. Except in places protected from erosion, it has little or no covering of surface mould.

On this heap stood a Douglas-fir stump 29 ft. in circumference at a point 5 ft. above the ground, and another $29\frac{1}{2}$ ft. 3 ft. above the ground [see cut]. The hollow log fallen from this stump was 6 ft. 7 in. in diameter at the butt, and 6 ft. 3 in. at the upper end of the first section, 5 ft. higher. Many unbroken strata under this stump extended to the eastern limit of the trench, as far as 30 ft., showing



IMPLEMENTS FROM PORT HAMMOND AND EBURNE, FRASER RIVER, BRITISH COLUMBIA: 1, WEDGE MADE OF ANTLER; 2, CELTS OF STONE; 3-4, CELTS OF STONE; 5-6, CELTS OF STONE AND HAFTS OF ANTLER; 7, NEPHRITE BOWLER, PARTLY CUT BY A GROOVE; 8, PART OF GRITSTONE WITH GROOVE; 9-10, BONE OBJECTS, POSSIBLY MESH-MEASURES; 11-12, BONES CUT LONGITUDINALLY; 13-17, BONE AWLS; 18, BONE AWL; 18-22, NEEDLES OF BONE; 23-24, ANTLER-TIPS WITH CARVED KNOBS; 25, DAGGER OF BONE; 26, WAR OR CEREMONIAL CLUB OF STONE; 27, BONE BUTTON; 28, COMB-LIKE OBJECT OF ANTLER; 29, STONE LABRET, SIDE AND BOTTOM VIEWS; 30, PENDANT MADE OF IVORY; 31, STONE OBJECT, POSSIBLY A FRAGMENT OF AN EARRING; 32, FRAGMENT OF STONE OBJECT, PROBABLY FROM WRISTLET; 33-34, TUBULAR PIPES OF STEATITE; 35-36, BONE OBJECTS BEARING INCISED GEOMETRIC DESIGNS; 37-38, HARPOONS BEARING INCISED GEOMETRIC DESIGNS; 39-41, FRAGMENTS OF HARPOON POINTS OF BONE OR ANTLER; 42-43, FRAGMENTS OF BONE OBJECTS, PROBABLY WRISTLETS; 44, BONE OBJECT BEARING INCISED GEOMETRIC DESIGN; 45, SCULPTURE IN STONE; 46, FRAGMENT OF STONE PIPE; 47, ORNAMENTED STONE MORTAR; 48, SCULPTURE IN STONE MORTAR; 49, MORTAR FROM THE NORTH ARM OF THE FRASER RIVER; 50, SCULPTURE OF STONE; 51, SCULPTURE IN HYDRO-CARBON, PROBABLY USED AS A PENDANT; 52, A SCULPTURED MORTAR; 53, CARVED PIECE OF ANTLER.

that all objects found below them, even if not directly below the stump, were older than the strata under the tree.

Implements made of stone, bone, and antler, were numerous down to the depth of 6 ft. In the deeper layers, which consist of white shell material, implements made of bone were more plentiful than stone objects.

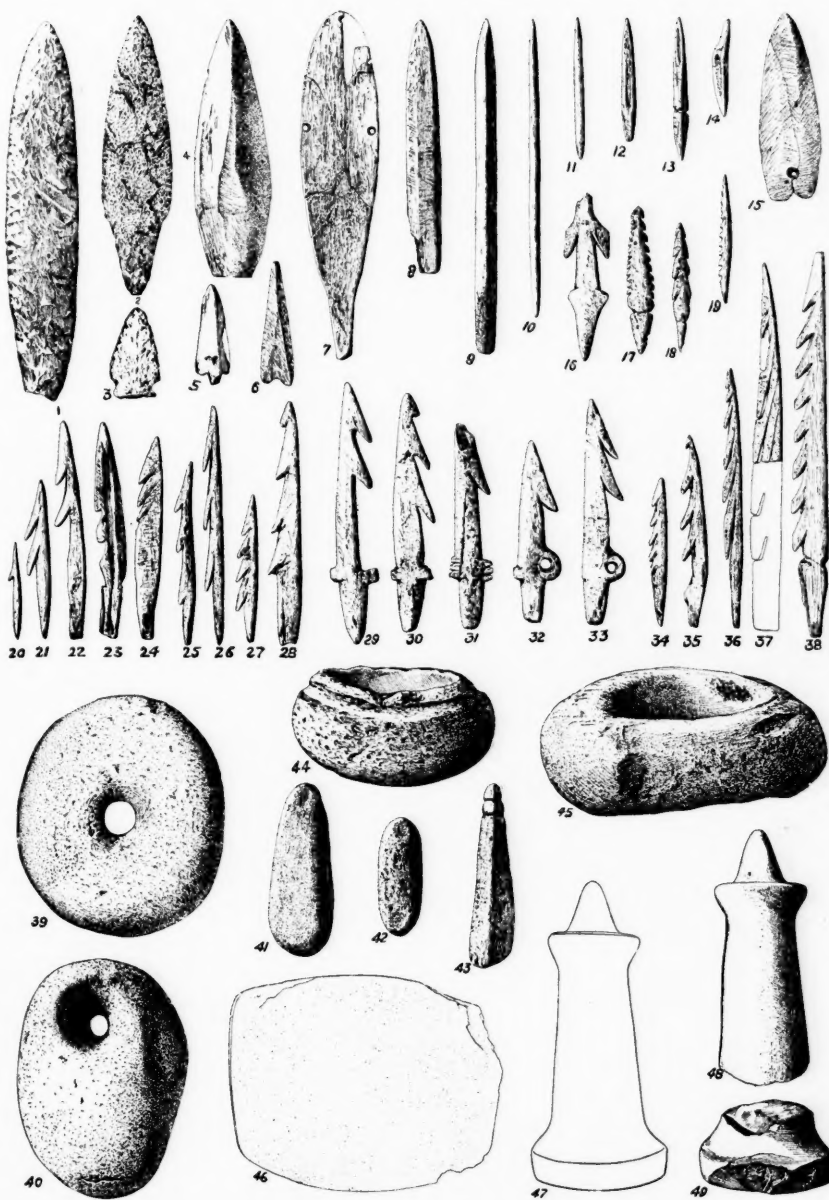
Two distinct types of human skeletons were found above a depth of 6 ft., and most frequently in the northern inland slope of the heap. The first type, of which the greater number were secured, had a skull resembling in shape those found at Port Hammond. The other type, with very narrow forehead, seems to be artificially deformed by lateral pressure.

The shell-heaps of the Lower Fraser River seem to have certain peculiarities of their own, and vary in detail not only from most of the shell-heaps of the coast region, but also from those of the delta areas of the Stillaguamish and Skagit Rivers. The objects secured from the former are more numerous and of a higher artistic value than those found in the coast shell-heaps, or even in those of the other deltas. Human skeletons are frequently found in the shell-heaps of the Lower Fraser. They are rarely met with in the coast shell-heaps, and are only occasionally found in the shell-heaps of the Skagit and Stillaguamish deltas.

On the whole, the difference in character between the delta shell-heaps and those of the coast seems to be due to the blackness of the surrounding soil, poor drainage and the dissimilarity between the mode of life of a delta and that of a seacoast people. The more frequent occurrence of skeletons is an unsolved problem, since the scarcity of cairn-burials is common to the immediate neighborhood of both the Lower Fraser River, where skeletons are found in the shell-heaps, and to the northern part of Vancouver Island, where they are absent from the shell-heaps. The difference between the various delta shell-heaps seems to be due to the fact that the culture of the inhabitants of the Lower Fraser River was more highly developed than that of the inhabitants of other parts of the coast, probably on account of a more favorable environment and a location where intercourse between the tribes of different cultures was greater than in neighboring regions.

There is no apparent difference in the character of the specimens found in the upper and in the lower layers. The general style of the objects is similar to those made by the present tribes of the coast. Several exquisite specimens of stone and bone carvings were discovered which rival in artistic merit the best sculptures of the existing natives.

The implements most commonly found are points chipped from stone or ground from slate or bone and used for arrows, knives, harpoons, or spears; stone pestles or hammers; mortars of stone; fish-knives rubbed out of slate; wedges made of antler; celts of stone; celt-handles made of antler; whetstones or grinding stones; awls



IMPLEMENTS FROM PORT HAMMOND AND EBURNE, FRASER RIVER, BRITISH COLUMBIA: 1-3, CHIPPED POINTS FROM MAIN SHELL-HEAP AT EBURNE—(1) WHITISH CHERT, (2) BLACK TRAP, (3) CRYSTALLINE QUARTZ; 4-6, GROUND POINTS—(4) OF SLATE FROM SURFACE NEAR MAIN SHELL-HEAP, (5) MICA SCHIST, (6) SLATE FROM MAIN SHELL-HEAP; 7, BONE OBJECT MAIN SHELL-HEAP; 8-9, BONE POINT FROM MAIN SHELL-HEAP; 10-14, BONE BARB POINTS, OR AWLS; 15-18, BONE POINTS; 19-20, BONE HARPOON POINTS; 21-22, BONE POINTS; 23, BONE HARPOON POINT; 24-28, BONE HARPOON POINTS; 29-33, BONE HARPOON POINTS WITH GUARDS; 34-38, BONE HARPOON POINTS; 39-40, PERFORATED STONES; 41-42, STONES SHOWING PECKED PITS; 43, STONE SINKER (?); 44, MORTAR MADE OF LAVA; 45, MORTAR MADE OF SANDSTONE; 46, FISH KNIFE MADE OF SLATE; 47, A RECONSTRUCTED PESTLE OF THE LOWER FRASER VALLEY; 48-49, PARTS OF PESTLES.

and needles of bone ; and engraved and carved objects made of bone and stone.

The finds indicate that the prehistoric people whose remains are found in these shell-heaps had a culture resembling in most of its features that of the present natives of the Fraser Delta. They subsisted to a great extent on fish, which were caught by means of hooks and harpoons resembling in form the corresponding modern devices of the region. Large sea-mammals were hunted with retrieving-harpoons, upon whose manufacture much care was bestowed, some of them exhibiting highly artistic designs. Shell-fish constituted an important part of the diet of the people. They hunted on the mountains and probably utilized the meat and horn of the mountain goat. Deer and elk were eaten, and their bones and antlers used for many purposes. Dogs were probably used in hunting. Skins of animals were prepared and served as garments. There is no evidence that the hair of goats or dogs was spun and used for weaving, as has been done in modern times. The people were workers in wood. They used wedges and chisels for splitting and hewing planks. The frequency of these implements indicates that woodworking was no less important in their economy than it is among the modern Indians. No indication as to the character of their habitations has been found. Possibly some of the small knolls may be the piles of refuse thrown near houses. The presumption seems justifiable that they lived in houses made of cedar-planks. They must have had canoes. Shredded cedar-bark was used for a variety of purposes, among others probably for clothing. It was shredded with the same kind of implements as are used at the present time. Possibly mats like those used by the present natives of the region were made by sewing together cat-tail stalks. This is suggested by the flat needles made of bone.

There are, however, some points of difference between the people of the past and those of the present. First of all, the physical type of part of these people differed very much from that of the modern Indians, while another part seems to have been of the same type. Professor Franz Boas describes these two types as follows :—

“The one type is characterized by a narrow head, the narrowness of which was emphasized by lateral pressure, with a marked median ridge on the forehead, narrow and high nose, and rather narrow face, the other, by a wide head (produced partly by anteroposterior pressure) and a wide face.”

Differences in culture may also be noticed. Among the natives of the coast of British Columbia the art of chipping points was not practiced. Isolated specimens of chipped stones are found along the coast, but they are frequent only on the Fraser River and at Saanich on Vancouver Island, where many of them resemble both in shape and material those of the Thompson River region. The chipped points of Puget Sound and of the west coast of Washington are, on the whole, more similar to the chipped points of Columbia River.

These chipped points, the peculiar pipe, which occurs also at Saanich, and the geometrical designs before described,—all point to a close affiliation of the early culture of this region with that of the interior of British Columbia. Some classes of objects that are frequent in the archæological finds of the interior do not occur in the shell-mounds of Fraser River. No drills chipped from stone were found, unless some of the narrower specimens described as arrow-points served that purpose. Some of the more irregular chipped points may have been used as carving-knives, but no other such knives were seen. Pairs of half-cylinders of sandstone for smoothing and straightening arrow-shafts were not found. Beaver-teeth or woodchuck-teeth made into dice, which are now used both in the interior and on the coast, were not found. No objects were found buried with the skeletons, as is the case in the Thompson River region and in modern burials in the Fraser River Delta.

The coincidence of the similarity of culture of the prehistoric people of the Fraser Delta and of Saanich with the distribution of languages at the present time is quite striking. The Salish languages reach the coast on the Gulf of Georgia and southward as far as Shoalwater Bay. Their dialects are distributed in such a way that in the same latitude the same dialect is spoken east and west of the Gulf of Georgia. Vancouver Island and the parts of the mainland just opposite must therefore have had a common history, and this is also borne out by the finds at Saanich and on the Lower Fraser River.

It would seem, therefore, that we have here very good evidence of a close connection between the interior and the coast in prehistoric times, much closer than in later periods. It is probable that at an early time a migration took place from the interior to the coast and Vancouver Island. This migration carried the art of stone-chipping, pipes and decorative art, to the coast.

It should be mentioned in this connection that the most highly developed type of Northwest-coast art never extended south of Comox, and never reached the west coast of Vancouver Island. Although more realistic than the decorative art of the interior, the modern art of the region south of Comox and along the west coast of Vancouver Island is crude, as compared with that of the more northern regions.

A few specimens point at similarities between the prehistoric people of the Fraser Delta and those of the north. The most striking is the occurrence of the labret, which in historic times was not found south of Milbank Sound.

The migration referred to before may account for certain changes in ethnological customs, such as the rapid modification of the method of burial on the southeastern part of Vancouver Island. The earliest known kind of burial, and the one that is known to have antedated contact with the whites by a considerable period, was in stone cairns.*

*Smith and Fowle, *Cairns, Memoirs of the Am. Mus. Nat. Hist.*, Vol. IV, Part II.

Later, and even since contact with the whites, the bodies were placed in wooden chests, which were deposited on the ground, in the branches of trees, in caves, or on little islands. A canoe was sometimes used instead of a box.

The fact that skeletons were found in shell-heaps indicates that the customs of this people must have differed from those of the people who made the shell-heaps on northern Vancouver Island in which skeletons have not been found.

We may sum up the results of our inquiries by saying that the culture of the ancient people who discarded the shells forming these heaps was in all essential particulars similar to that of the tribes at present inhabiting the same area, but that it was under a much stronger influence from the interior than is found at the present time.

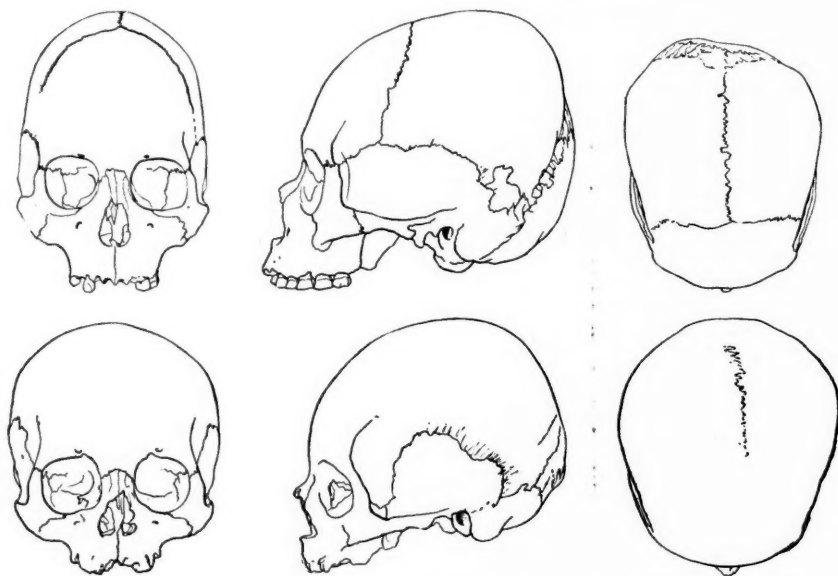


FIG. 60 (¹⁸⁹⁸1341 ¹⁸⁹⁹1770). TYPES OF SKULLS FROM SHELL-MOUNDS AT EBURNE :

ABOVE, THREE VIEWS OF NARROW TYPE OF SKULL ;

BELOW, THREE VIEWS OF BROAD TYPE.

EDITORIAL NOTES

EGYPT:—A recently discovered papyrus, according to the *London Chronicle*, was a contract between a shorthand teacher and a man who wished one of his slaves to acquire the art. The fee was 120 drachmæ, 40 to be paid on apprenticeship, 40 at the end of the year, and the balance when the slave was proficient. Shorthand writing was then presumably not so easy of attainment as it is now. Among the other documents of the Oxyrhynchus Papyri is the account of a fatal accident, and the body of the victim being examined by the coroner of the day, in company with a public physician. This dates back to the II Century of our era, in which, judging by other discoveries, the formal invitations to dinner might be literal renderings of ours at the present time.

Among the old manuscripts and documents which have been brought to light recently are the following: Remnants of a drama of Sophocles, hitherto entirely unknown, named *Achaliou Syllogoi*, have been found in a papyrus collection brought to the British Museum. Arrangements for its early publication have been made. The extracts are not large, but enough to show the character of the book. Considerably more extensive are the portions found of the *Protrepdikon* of Aristotle, which also had hitherto been known only by its title, these remains having been discovered in the papyri storehouse unearthed by Grenfell and Hunt in Oxyrhynchus in Lower Egypt. Ninety lines have been found of 2 odes, one a Partheneion, by Pindar, and the other the argument of a drama named *Dionysalexandros*, by Cratinus, on the subject of Paris of the Trojan War. A very important Latin manuscript from the same collection is an epitome of Livy, Books 37-40 and 48-55. Such Latin papyri are very rare, and this covers 8 books that were lost. The period covered is from 150 to 137 B. C. There has also been found a part of the *Medea* of Neophron, which is of historical importance because it was originally written for the contest that won the prize for the drama of the same title by Euripides.

A whole collection of Egyptian peasants' letters, written in Greek and ascribed to the III Century, were recently brought from Egypt to Florence. They are of special importance for the study of the agricultural conditions in the Nile Valley, and supplement in a most satisfactory manner the letters discovered some months ago and published in England, being the work of the Roman Planter, Lucius Bellenus Gemellus, about 100 A. D. These are of value in explaining the Alexandrian Greek of the New Testament. Thus in

the last find the word *kamelikos*, meaning *carried by a camel*, explains the meaning of *onikos*, *drawn by an ass*, in Mark 12:42.

AFRICA:—TRIPOLI—M. de Mathuisieulx has recently returned to Paris from a journey of exploration in Tripoli. In 1901 the explorer obtained permission, rarely given by the Turkish authorities, to travel through that little-known country in order to collect information on its natural products and geological structure as well as upon its ancient monuments and racial types. M. de Mathuisieulx made an interesting report on the subject to the Minister of Public Instruction, and it was to complete his observations that he again visited Tripoli in the spring of 1903. He first made a careful study of the ruins at Sabratha, about 60 miles through Tripoli, and a considerable port under the Phœnicians. From Sabratha M. de Mathuisieulx traveled south to the Djebel Mountain, where he was able to establish the fact that the celebrated Roman road from Gabes to Lebda passed not by Ghadames, as has been for so long supposed, but over an elevated plateau in the district. The traveler noted that in this neighborhood the ruins of various temples and mausoleums are disappearing, as the inhabitants use the stones to build their houses. At Gherza, 70 miles to the south of Misda, the mission visited other ruins belonging to the Byzantine period. Copies were taken of numerous inscriptions and bas-reliefs of considerable archaeological interest. At Orfela and in the valley of Nefed mausoleums of a style of architecture peculiar to this part of Africa were discovered. They were of ancient date and displayed an unusual wealth of detail. In this case the monuments had been respected by the inhabitants, who were, indeed, of too nomadic a character to have recourse to building material of such a nature. In addition to his archaeological researches, M. de Mathuisieulx made an ethnographical study of the native negro.

EUROPE:—CRETE—Miss Harriet Boyd, the most celebrated woman who has undertaken field explorations, in a recent letter gives an account of the excavations she carried on in Crete during 1903.

The Bronze Age was the Golden Age of Cretan history, the age which Homer described in the *Odyssey*. And the Gournia that Miss Boyd has caused to be added to one of the new maps of Crete was probably the 90 cities to which he referred.

The archaeological value of Miss Boyd's work in Crete can therefore scarcely be overestimated. When, on May 22, 1901, she sent to the American Exploration Society, which is supporting her expedition, a telegram saying: "Discovered Gournia, Mycenæan site, streets, houses, pottery, bronzes, stone jars," scholars recognized the fact that a city of which absolutely no record anywhere exists had come to light.

The discovery of which this telegram gave news to the world came almost at the end of the 1901 expedition. It was not until her return to Crete last spring that Miss Boyd was able fully to realize the wonders of the work she had found to do. Then, in company

with Miss Moffat, she settled down again to investigate her Bronze Age city. The story of this past year's labor, as she herself tells it, is full of color and interest. The following is from her letter:

We found the excavations in excellent order, after 2 years under the watchful guardianship of an old peasant employed by the Cretan Government. Nature had, in fact, clothed the dump heaps with such myriads of flowers during our absence and so filled the crannies of the old walls with bright poppies and daisies that our little town on the hill had a far more cheerful look than when we left it.

We began work on March 30, at the south end of the imposing building that I have called the palace, cleared an outer and an inner court, a well preserved hall and 2 stairways, making the plan of the ground floor complete and finding it to resemble in many ways the contemporary palaces at Knossos and Phæstos.

This building has absolutely nothing in common with the classical Greek house. The plan is roughly a square, measuring 130 by 130 ft.

The land slopes down toward the west, where there is a set of storerooms below the level of the central hall. On the east side only the bare rock remains between the hall and the outer wall, showing that all the rooms in this part of the palace were on a second floor level and have been completely destroyed by wind and rain.

The entrance to the palace is from the south, and there are broad steps on which the people could sit, warming themselves in the sun and watching what went on before them in the open court, which may have served the town as a market place. Ascending the steps, which are arranged at right angles to each other, as in other palaces of the time, we enter over a large threshold, follow a corridor paved with flagstones, cross the central court and reach the main hall through a portico composed of square and round columns alternating.

The hall is square. In one corner is a recess, having a column in front and seats on the other 3 sides, reserved, I fancy, for the lord of the manor. A private stairway led to the more important rooms, on the second floor of which, alas, nothing remains save the debris of stone flooring and burned beams that choked the hall below.

On the eastern slope of the low acropolis we uncovered a new quarter of the town, a block of houses bounded by paved streets. A new street which connects the valley road with the top of the hill here rises by 20 steps, like the streets of Naples.

The houses are built flush with the road and close together. They are of about equal size, and although small are well built, on quite the modern plan of cellar, ground floor and upper floor.

To be sure, these 3 stories are not there today, but there is ample evidence of their former existence. My theory of the town, which is really quite modern in its aspect, is that it was probably attacked by an enemy, pillaged, burned and deserted.

Besides, the small palace already described, made in part of well

trimmed blocks of stone, beautifully fitted together, and the 40 or so houses, we have excavated a shrine with idols.

Last season was not without its very important new discoveries; for we then found our first tablet, inscribed with the prehistoric characters made familiar to archæologists in the last 4 years by the excavations at Knossos and Aghia Tridha. These characters are still illegible, but we may at any time find a bi-lingual with Egyptian hieroglyphs as the counterscript, and if that happens a wholly new and very important chapter of European history will be read. At present our single tablet establishes the fact that the provincials of Gournia were not all illiterates, and it is an important clue for dating.

Other evidence for dating is given by the pottery, and in this class of finds we were especially lucky last year. A stirrup-cup decorated with 2 sprawling cuttlefish, and a set of 8 drinking horns bearing plant and semi-conventional designs, take high rank among the prehistoric pottery thus far discovered in the *Ægean*.

This pottery, by the way, is very poorly represented in the museums of western Europe and America, because the excavations yielding it have almost all been made during the period when the export of antiquities was forbidden. Within the last month, however, a law has been passed permitting duplicates of important finds to be carried out of the country.

By this permission the University of Pennsylvania will ere long receive, as a result of our excavations, a very valuable and absolutely unique set of vases and tools of the Bronze Age. The Boston Art Museum has not a single example of Minoan pottery—the ware of the time of King Minos of labyrinth fame. Persons seeing this pottery for the first time are often struck by its resemblance to the Japanese, but it is absolutely unlike classical Greek pottery.

When exhumed it's almost always, of course, very far from perfect. The stirrup-jug was put together by Aristides out of 86 fragments, a task requiring delicacy of hand, precision and very great patience.

About a dozen girls are employed all the time by us, washing the fragments of pottery, which often have dirt half an inch thick on them when they are turned up in the digging. Sixty of our men do nothing but carry earth and stone, and 14 more skillful ones use the pickax and knife in getting out the vases.

The money for the excavations carried on in 1901 was furnished by Mrs. Cornelius Stevenson, Mr. Charles Cramp and Mr. Calvin Wells, of Philadelphia. The funds for the excavations she is now carrying on were given by Mrs. Samuel Houston and Mr. Calvin Wells, of Philadelphia.

Miss Boyd has just returned to Crete where she will continue, as formerly, overseeing the excavations from 6 o'clock in the morning until nearly 6 in the evening, encouraging and directing the workmen. Although the expense of the undertaking is about \$250 a week, the results have fully justified the expenditure.



MOUND IN THE PARK, KALAMAZOO, MICHIGAN

NORTH AMERICA:—UNITED STATES—*Prehistoric Remains in Michigan*—It is well known to many interested in the preservation of prehistoric remains in the United States, that Michigan possesses many mounds and earth-works of unique interest. Mr. Harlan I. Smith, of the American Museum of Natural History, has been a most devoted champion of the movement to preserve from further despoliation some of the more notable of Michigan's historic monuments. In this he is ably seconded by George M. Bates, Esq., of Detroit, the President of the Detroit Branch of the Archæological Society of America.

Several attempts have been made to secure such State legislation as will enable these prehistoric monuments to be preserved through the creation of parks. In the above illustration we have an example of the preservation of one, which will be for all time a reminder to students of history of the work of the aborigines of that locality.

The State of Ohio was the pioneer in the movement to preserve the monuments of the aborigines of the United States. The Great Serpent Mound, which is one of the most notable of the earth-works of the Mississippi Valley and its tributaries, and Fort Ancient are notable examples of what can be done by State Archæological Societies. The same good results could be accomplished in several of the

other States. Mr. Harlan I. Smith is of the opinion, and many citizens of Michigan agree with him, that a prehistoric earth-work in Ogemaw County, Michigan, is in danger of being destroyed, and that in order to preserve it, the land on which it is located should be purchased and made into a public park, either under the auspices of the State or of some society. A special act could then be passed by the State Legislature exempting it and all similar parks enclosing prehistoric works, which are not held for profit, from taxation.

This earth-work encloses a nearly circular area about 200 ft. in diameter. The embankment is over 2 ft. in height. Outside of it is a ditch over 2 ft. deep, from which the earth may have been taken to form the wall. There are 3 openings in the embankment with corresponding interruptions in the ditch. These were probably entrances into the Fort. It is located in a lumbered tract of wild land within 4 miles, south and west of West Branch, in Ogemaw County, Michigan.

A loggers' road about 6 ft. wide, winding through the country, crosses the embankment and reduces it somewhat. The ditch has been filled with logs where the road crosses. The road being narrow has only damaged a slight part of the entire work.

Mr. Smith says that when he visited the earth-work in 1901 men were engaged in cutting a roadway, which would replace the loggers' road. He also states that there are at least 4 similar earth-works along the Rifle River and that it would be most desirable to secure the most perfect one of these that can be purchased for a reasonable sum and not wait until danger threatens it.

It seems very strange that wealthy men should not be willing to purchase such sites and hold them until either the State or some society could make provision for their permanent preservation. We believe that there are many men in Michigan who, if appealed to, would be willing to do this. Of course it requires time to bring these matters to the attention of those who are able to respond. But each monument thus preserved for the future becomes a monument to its protectors.

Another example of the despoliation of such mounds is reported from Racine, Wisconsin. The Teegarden Indian Mounds, which are among the finest in the State, have been destroyed by the farmers, who took the earth of which the mounds were built to grade a road near by. The Wisconsin Archæological Society is accomplishing much in their efforts to preserve the mounds and antiquities of the State, but they must have the support of the people in general to be successful in this work.

The mounds and other earth-works in Michigan and Wisconsin indicate a considerable prehistoric population known as the Mound Builders. Their monuments are found from Georgia to the Mississippi Valley and from the Gulf of Mexico to the Great Lakes. Michigan is to be congratulated on having one of her sons, Mr. Smith, now a distinguished archæologist, devote so much of his busy life to the preservation of her prehistoric monuments.

